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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/615,658

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Sung-Jae Moon

8071-37 (OPP021230US)

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7590

03/08/2006

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EXAMINER

CHANG, KENT WU

ART UNIT

PAPER NUMBER

2675

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/615,658

Applicant(s)

MOON ET AL.

Examiner

Kent Chang

Art Unit

2675

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23, 25-47 and 49 is/are rejected.
- 7) ☒ Claim(s) 24 and 48 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/14/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The references listed in the Information Disclosure Statement submitted 1/14/04 have been considered by the examiner (see attached PTO-1449).

Election/Restrictions

2. Claims 1-49 were originally restricted as directed to two distinct inventions. However, further analysis of the claims has revealed that such a restriction was made improperly. Therefore, the restriction requirement is withdrawn and all of the claims have been examined.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1- 5, 9, 12, 18, 20, 25, 26-29, 33, 35, 36, 41-42, 44, and 49 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakajima (US 2003/0011548).

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As to claims 1 and 49, Nakajima teaches a liquid crystal display comprising: a first substrate; and a plurality of driving signal lines formed on the first substrate, the plurality of driving signal lines including a plurality of voltage transmission lines (voltage transmission of V7 to V0 as shown in Figures 6, 7, and 9), wherein each voltage transmission line carries one of a plurality of predetermined voltages and the voltage transmission lines are arranged on the first substrate according to the magnitudes of the predetermined voltages carried by the voltage transmission lines (see ¶¶0024,0035,0036).

As to claim 2, the device of Nakajima wherein the voltage transmission lines are sequentially arranged based on increasing magnitude of the predetermined voltages carried by the voltage transmission lines (from V0 to V7).

As to claim 3, the device of Nakajima wherein the voltage transmission lines are sequentially arranged based on decreasing magnitude of the predetermined voltages carried by the voltage transmission lines (from V7 to V0).

As to claims 4 and 5, the device of Nakajima includes signal lines (the mode selection lines for controlling the switches SW5, SW6, SW7, SW8 as shown in Figures 6, 7, 9) between the voltage transmission lines.

As to claim 9, the device of Nakajima comprises a gray voltage generator.

As to claim 12, the device of Nakajima further comprises data driver for receiving gray voltage signals via the gray voltage transmission line (13U).

As to claims 18 and 20, the device of Nakajima further comprises a first electrode and a switching element (TFTs) formed on the first substrate, wherein the first electrode is electrically connected to the switching element; a plurality of display signal lines including at least one gate line and at least one data line intersecting the at least one gate line, wherein the display signal lines are formed on the first substrate and electrically connected to the switching element; a second substrate spaced apart from the first substrate by a gap, the gap including liquid crystal; and a second electrode formed on the second substrate (see ¶0023-0029 and Fig.1,2).

As to claim 25, Nakajima teaches a liquid crystal display comprising: a first substrate; a plurality of control signal lines formed on the first substrate; a plurality of voltage transmission lines (voltage transmission of V7 to V0 as shown in Figures 6, 7, and 9) formed on the first substrate, wherein each voltage transmission line carries one of a plurality of predetermined voltages and the voltage transmission lines are arranged on the first substrate according to the magnitudes of the predetermined voltages IS carried by the voltage transmission lines; a switching element formed on the first substrate; and a plurality of display signal lines including at least one gate line and at least one data line intersecting the at least one gate line, wherein the display signal lines are formed on the first substrate and electrically connected to the switching element(see ¶0024,0035,0036).

Claims 26-29, 33, 35, 36, 41-42, 44 recite the same limitations as claims

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1-5, 9, 12, 18, 20, respectively, thus see the rejection of claims 1-5, 9, 12, 18, 20 above.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 6, 7, 8, 10, 11, 13-17, 19, 30-32, 34, 37-40, 43, and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima (US 2003/0011548).

Nakajima teaches a liquid crystal display comprising: a first substrate; a plurality of control signal lines formed on the first substrate; a plurality of voltage transmission lines (voltage transmission of V7 to V0 as shown in Figures 6, 7, and 9) formed on the first substrate, wherein each voltage transmission line carries one of a plurality of predetermined voltages and the voltage transmission lines are arranged on the first substrate according to the magnitudes of the predetermined voltages IS carried by the voltage transmission lines; a switching element formed on the first substrate; and a plurality of display signal lines including at least one gate line and at least one data line intersecting the at least one gate line, wherein the display signal lines are formed on the first substrate and electrically connected to the switching element(see ¶0024,0035,0036).

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Nakajima further teaches having a gate driver, data driver comprising signal control lines, and power supply lines Vcc or Vss, ground voltage line mounted in the same substrate. It would have been obvious for one ordinary skill in the art at the time of the invention to place the signal control lines, the power supply lines Vcc or Vss, the ground voltage line at any position including the position near the reference voltage transmission lines so as to reduce the area needed to mount the driving circuit as well as the overall size of the display device. In other words, it would have been obvious for one ordinary skill in the art at the time of the invention to place any signal lines or power lines having any voltage levels near the reference voltage transmission lines for the reasons stated above.

7. Claims 21-23 and 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima (US 2003/0011548) in view of Sakaguchi (US 2001/0033259).

Nakajima teaches a liquid crystal display comprising: a first substrate; a plurality of control signal lines formed on the first substrate; a plurality of voltage transmission lines (voltage transmission of V7 to V0 as shown in Figures 6, 7, and 9) formed on the first substrate, wherein each voltage transmission line carries one of a plurality of predetermined voltages and the voltage transmission lines are arranged on the first substrate according to the magnitudes of the predetermined voltages IS carried by the voltage transmission lines; a switching element formed on the first substrate; and a plurality of display signal lines including at least one gate line and at least one data line intersecting the at least one gate line, wherein the display signal lines are formed on the first substrate

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and electrically connected to the switching element(see ¶0024,0035,0036).

Nakajima further teaches having a gate driver, data driver comprising signal control lines, and power supply lines Vcc and Vss, ground voltage line mounted in the same substrate. Nakajima does not show input pads for connecting the wire.

However, in the same field of endeavor, Sakaguchi teaches a LCD having gate drivers, data drivers, reference voltage generator with input pads connecting the signal lines to the drivers (¶0049-0051). Therefore, it would have been obvious for one ordinary skill in the art at the time of the invention to use input pads at the end of the signal lines so as to connect the signal lines to the drivers.

Allowable Subject Matter

8. Claims 24 and 48 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record fails to teach a liquid crystal display comprising: a first substrate; and a plurality of driving signal lines formed on the first substrate, the plurality of driving signal lines including a plurality of voltage transmission lines, wherein each voltage transmission line carries one of a plurality of predetermined voltages and the voltage transmission lines are arranged on the first substrate according to the magnitudes of the predetermined voltages carried by the voltage transmission lines, a first pad connected to an end of a first voltage transmission line of the plurality of voltage transmission

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lines, the first voltage transmission line carrying a first voltage of the plurality of predetermined voltages; a second pad connected to an end of a second voltage transmission line of the plurality of voltage transmission lines, the second voltage transmission line carrying a second voltage of the plurality of predetermined voltages; and an isolated pad interposed between the first and second pads, wherein the isolated pad is electrically connected to at least one redundant driving signal line and the at least one redundant driving signal line carries a voltage equal to the higher one of the first and second voltages as recited in the claims.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Motegi et al (US2003/0011558); Kawamura et al (US 2003/0058208).

CONTACT INFORMATION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kent Chang whose telephone number is 571-272-7667. The examiner can normally be reached on Monday to Thursday from 9:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz, can be reached at 571-272-3638.

Any response to this action should be mailed to:

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Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

571-273-8300

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Kent Chang
Primary Examiner
Art Unit 2675

kc

3/3/06